

CLAIMS

The invention claimed is:

1. A fog detector system for detecting fog on an inside surface of a vehicle window, said fog detector system comprising:

an emitter for selectively projecting radiation onto a region of the inside surface of the vehicle window;

a sensor disposed with its optical axis substantially in parallel with that of said emitter, said sensor being sensitive to the radiation projected by said emitter for sensing levels of incident radiation both when said emitter projects radiation and when said emitter does not project radiation; and

a control circuit coupled to said emitter for selectively activating said emitter, and coupled to said sensor for receiving signals from said sensor representing the level of incident radiation, said control circuit determines the difference between levels of incident radiation when said emitter is activated and when said emitter is deactivated, and compares the difference to a threshold to determine whether fog is present, said control circuit generates a signal indicating the presence of fog on the vehicle window.

2. The fog detector system of claim 1, wherein said control circuit generates a signal to cause a defogger to be activated when fog is present.

3. The fog detector system of claim 2, wherein said control circuit generates a signal to cause the defogger to be deactivated when fog is no longer detected.

4. The fog detector system of claim 1, wherein said control circuit generates a signal to cause a defogger to be deactivated when fog is no longer detected.

5. The fog detector system of claim 1, wherein said emitter is an LED.

6. The fog detector system of claim 1, wherein said sensor is a photodiode.

7. The fog detector system of claim 1 and further comprising a housing in which said emitter and sensor are supported.
8. The fog detector system of claim 7, wherein said control circuit is housed in said housing.
9. The fog detector system of claim 7, wherein said housing is a mirror housing of a rearview mirror assembly.
10. The fog detector system of claim 7, wherein said housing is integrated in a CHMSL assembly.
11. The fog detector system of claim 2, wherein the vehicle window is a rear window and said defogger is a rear window defogger.
12. The fog detector system of claim 1, wherein said control circuit calibrates to redefine said threshold when said control circuit determines that the vehicle window is clear of fog.
13. The fog detector system of claim 12, wherein said control circuit is configured to receive climate information upon which said control circuit may determine that the vehicle window is clear of fog.
14. The fog detector system of claim 13, wherein the climate information includes any one or combination of: interior temperature, exterior temperature, humidity, and defogger activation status.
15. A method of detecting fog on an inside surface of a vehicle windshield comprising:
providing a sensor and an emitter disposed with their optical axes substantially in parallel and aimed generally at a region of the inside surface of the vehicle window;

selectively projecting radiation from said emitter onto said region of the inside surface of the vehicle window;

sensing levels of incident radiation when said emitter projects radiation and when said emitter does not project radiation;

determining the difference between levels of incident radiation when said emitter projects radiation and when said emitter does not project radiation; and

comparing the difference to a threshold to determine whether fog is present.

16. The method of claim 15, wherein said emitter is an LED.

17. The method of claim 1, wherein said sensor is a photodiode.

18. The method of claim 15 and further comprising calibrating and redefining said threshold when the vehicle window is clear of fog.

19. A fog detector system for detecting fog on an inside surface of a vehicle window, said fog detector system comprising:

an LED for selectively projecting radiation onto a region of the inside surface of the vehicle window;

a sensor disposed with its optical axis substantially in parallel with that of said emitter, said sensor being sensitive to the radiation projected by said emitter for sensing levels of incident radiation both when said LED projects radiation and when said LED does not project radiation; and

a control circuit coupled to said emitter for selectively activating said emitter, and coupled to said sensor for receiving signals from said sensor representing the level of incident radiation, said control circuit determines the difference between levels of incident radiation when said LED projects radiation and when said LED does not project radiation, and compares the difference to a threshold to determine whether fog is present, said control circuit generates a signal to cause a defogger to be activated when fog is present and to cause the defogger to be deactivated when fog is no longer detected.

20. The fog detector system of claim 19, wherein said sensor is a photodiode.
21. The fog detector system of claim 19, wherein said LED and said sensor are integrated in a CHMSL assembly.
22. The fog detector system of claim 19, wherein the vehicle window is a rear window and the defogger is a rear window defogger.
23. The fog detector system of claim 19, wherein said control circuit calibrates to redefine said threshold when said control circuit determines that the vehicle window is clear of fog.